

ABSTRACT OF THE DISCLOSURE

A method for fabricating carbon electrode coated with a porous metal film includes the steps of: positioning a roll of carbon material within a vacuum chamber; winding the carbon material off the roll at a certain speed, winding the carbon material on a different roll while coating a porous metal to a thickness of a few Å ~ a few μm on the carbon material between the two rolls from a metal evaporation source; and stabilizing the thusly coated carbon material under a vacuum. The coated porous metal film is of Li, Al, Sn, Bi, Si, Sb, Ni, Cu, Ti, V, Cr, Mn, Fe, Co, Zn, Mo, W, Ag, Au, Pt, Ru, Ir, In or their alloys. Since the stable film is formed on the surface of the carbon material, when the thusly coated carbon material is use for forming a cathode electrode of a secondary battery, the reversibility and high rate charging and discharging characteristics of the carbon electrode can be improved. In addition, when a lithium-ion secondary battery is fabricated using the carbon electrode coated with lithium or a lithium alloy, the capacity degradation due to the irreversible capacity of the conventional carbon electrode appearing at the initial state of charging can be prevented, so that the capacity can be increased.